

Amendments to the Claims

1. (Currently Amended) A navigation device for a vehicle comprising:

map data providing means for reading map data from a recording medium;

pre-reading process means for receiving a destination, detecting a current position of the vehicle, determining a route from the current position of the vehicle to the destination according to the map data provided from the map data providing means, setting an area of a first map, which corresponds to a first part of the route associated with a first type of road, to a first range in a pre-reading process and setting an area of a second map, which corresponds to a second part of the route associated with a second type of road, to a second range in the pre-reading process such that map data size of the area of the second range is less than map data size of the area of the first range, such that the first type of road is indicated by a first road attribute and the second type of road is indicated by a second road attribute, wherein the first type of road differs from the second type of road according to the first road attribute and the second road attribute, and wherein the first type of road denotes a general

road other than a throughway, and the second type of road denotes a throughway;

data storing means for storing both first map data, which corresponds to the first map area set by the pre-reading process means and is provided from the map data providing means, and second map data, which corresponds to the second map area set by the pre-reading process means and is provided from the map data providing means, in the pre-reading process; and

guiding means for guiding the vehicle to take the route to the destination according to both the first map and the second map which are indicated by both the first map data and the second map data stored in the data storing means.

2. (Previously Presented) The navigation device according to claim 1, wherein the pre-reading process means further comprises:

road attribute checking means for:

receiving the map data of a map area, which is partitioned into a plurality of map units and includes both the first type of road, to which the first road attribute indicating the first type of road is attached, and the second type of road to which the second road attribute indicating the second type of road is attached, from the map data providing means,

partitioning the route placed on both the first type of road and the second type of road into a plurality of route links, respectively included in one of the map units, so as to attach the road attribute indicating the first type of road or the road attribute indicating the second type of road to each route link,

checking whether the road attribute attached to each route link indicates the first type of road or the second type of road,

specifying a first remarked map unit including each first remarked route link and one or a plurality of map units placed near to the first remarked map unit in cases where the road attribute attached to the first remarked route link indicates the first type of road,

specifying a second remarked map unit including each second remarked route link in cases where the road attribute attached to the second remarked route link indicates the second type of road,

controlling the data storing means to store data of the first remarked map units and data of the map units placed near to the first remarked map units as the first map data, and

controlling the data storing means to store data of the second remarked map units and data of the map units placed near to the second remarked map units as the second map data.

3. (Canceled).

4. (Previously Presented) A navigation device for vehicle according to claim 3, wherein one or a plurality of map units placed near to one second remarked map unit are specified by the road attribute checking means in cases where a junction exists in the second remarked map unit, and the data storing means is controlled by the road attribute checking means to additionally store data of the map units placed near to the second remarked map unit as the second map data.

5. (Previously Presented) A navigation device for vehicle according to claim 2, wherein a second pre-reading process is performed by the road attribute checking means to specify one or a plurality of additional map units placed near to the map units which are placed near to the first remarked map unit or the second remarked map unit, and the data storing means is controlled by the road attribute checking means to additionally store data of the additional map units.

6. (Previously Presented) A navigation device for vehicle according to claim 1, wherein the map data providing means is formed of a communication unit, connected with an internet, for downloading the map data from an external server and providing the map data for the pre-reading process means and the data storing means.

7. (Previously Presented) A navigation device comprising:

a disk unit for reading data from a recording medium, the data including map data;

a data buffer for storing the data read from the recording medium;

a vehicle position detecting unit for determining a current position of a vehicle by receiving inputs including global positioning information;

a route determining unit for determining a driving route from the current position of the vehicle to a destination, the destination being inputted by a user; and

an information processing unit for outputting driving information based on the determined driving route,

wherein the driving route has a first road type and a second road type and is divided into ranges, each range receiving an attribute depending on a classification of the road type within the range, and

wherein the amount of map data stored in the data buffer is dependent on the attribute associated with each range of the driving route.

8. (Previously Presented) The navigation device according to claim

7, wherein upon completion of storing the map data, which is dependent on the attribute, in the data buffer, additional data other than map data is stored in a free area of the data buffer.

9. (Previously Presented) The navigation device according to claim 7, wherein, depending on the attribute of the range, map data for adjacent ranges is stored in the data buffer.

10. (Currently Amended) A method of determining a route for a vehicle in a navigation device, said method comprising the steps of:

determining a current vehicle position;

receiving, as an input, a destination;

determining a driving route from the current vehicle position to the destination;

storing map data, which is associated with the driving route, in a data buffer; and

outputting driving information based on the determined driving route,

wherein the driving route has a first road type and a second road type and is divided into ranges, each range receiving an attribute depending on a classification of the road type within the range, wherein the first road type denotes a general road other

than a throughway, and the second road type denotes a throughway,  
and

wherein the amount of map data stored in the data buffer is dependent on the attribute associated with each range of the driving route.

11. (Currently Amended) A method for operating a navigation device to provide a route from a current position to a destination, said method comprising the steps of:

mounting a map recording medium to a disk unit to read map data of a map area that includes the current position and the destination, wherein the map area includes the route having a plurality of different road types, wherein the plurality of different road types include at least a first road type denoting a general road other than a throughway, and a second road type denoting a throughway,;

reading the map data to a data buffer by a control unit by determining a road type of the plurality of different road types for a route link of the route according to a road attribute attached to the route link;

storing the map data according to the road type;

mounting another recording medium to the disk unit; and

performing navigation operations using the map data stored within the data buffer.

12. (New) The device of claim 7, wherein the amount of map data stored in the data buffer is dependent on the attribute associated with each range of the driving route to reduce the amount of stored map data in the data buffer allowing functions other than navigation functions to be performed using at least one other recording medium.

13. (New) The method of claim 11, wherein said mounting another recording medium includes removing the map recording medium from the disk unit.